

Name(s) of Risk Team Members: R. Karol, R. Savage, J. Scott, M. VanEssendelft	Point Value → Parameter ↓	1	2	3	4	5
Area/Facility Description Title: Collider-Accelerator Department (C-A) Facility Wide Fire Protection	Occupancy or Use	≤once/year	≤once/month	≤once/week	≤once/shift	>once/shift
Area/Facility # (if applicable): FRA-2-07						
Area/Facility Description: C-A Facility Wide Fire Protection Systems and Practices	Severity	First Aid Only	Medical Treatment	Lost Time	Partial Disability	Death or Permanent Disability
Approved by: <i>E. Lessard</i> Date: 2/2/2007	Likelihood	Impossible	Unlikely	Possible	Probable	Multiple
Reason for Revision (if applicable): Correction of minor calculation error.				Comments: N/A		

			Risk with Controls in Place					Risk with Additional Controls in Place				
Physical Item or Activity	Hazard(s)	Control(s)	Occupancy A	Severity B	Likelihood C	Risk* AxBxC	Control(s) Added to Reduce Risk	Occupancy A	Severity B	Likelihood C	Risk* AxBxC	% Risk Reduction
Electrical Fire	Smoke And Heat	Fire detection & suppression systems, equipment protective systems, project design reviews, ASSRC/ESRC reviews, fire hazards analysis, fire stops, equipment reviews by CEE, electrical & life safety code compliance, Tier 1 inspections, removal of unused cable, ASE requirements, audible alarms, evacuation procedures and training, upgrading fire alarm panels, (ongoing) replacement of faulty Edward's 281A heat detectors (2005), replacement of front-end site-wide fire alarm system that allows more monitoring ability (2005), OHSA compliance, maintenance tasks, EMT & BNL fire rescue, CAS Watch facility walk-downs and Police patrols.	5	2	4	40	Encourage the laboratory to provide real commitment about fire alarm/detection upgrades.	5	2	3	30	25%

			Risk with Controls in Place					Risk with Additional Controls in Place				
Physical Item or Activity	Hazard(s)	Control(s)	Occupancy A	Severity B	Likelihood C	Risk* AxBxC	Control(s) Added to Reduce Risk	Occupancy A	Severity B	Likelihood C	Risk* AxBxC	% Risk Reduction
Faulty Heat Detectors - Fire	Smoke and Heat (Since 2005, the laboratory has replaced 259 Edwards 281A faulty heat detectors within C-AD facilities with Chemtronics heat detectors. However, recently these heat detectors have failed due to a wire terminal bar malfunction. In addition, there are still 232 faulty Edwards's 281A heat detectors in-place that require removal within 31 C-AD bldgs.)	Fire detection & suppression systems, equipment protective systems, project design reviews, ASSRC/ESRC reviews, fire hazards analysis, fire stops, equipment reviews by CEE, electrical & life safety code compliance, Tier 1 inspections, removal of unused cable, ASE requirements, audible alarms, evacuation procedures and training, upgrading fire alarm panels, (ongoing) replacement of faulty Edward's 281A heat detectors (2005), replacement of front-end site-wide fire alarm system that allows more monitoring ability (2005), OHSA compliance, maintenance tasks, EMT & BNL fire rescue, CAS Watch facility walk-downs and Police patrols.	5	2	4	40	Encourage the laboratory to provide real commitment about fire alarm/detection upgrades.	5	2	3	30	25%
Chemical Fire	Smoke And Heat	Fire detection & suppression systems, procedures, training, equipment protective systems, flammable storage cabinets, Tier 1 inspections, fire hazards analysis, CMS reviews, BNL fire rescue, CAS Watch facility walk-downs and Police patrols.	5	2	3	30						
Combustible Material Fire	Smoke And Heat	Fire detection & suppression systems, procedures, training, equipment protective systems, Tier 1 inspections, C-AD housekeeping policy, equipment reviews by CEE, CMS reviews, BNL fire rescue, CAS Watch facility walk-downs and Police patrols.	5	2	2	20						

			Risk with Controls in Place					Risk with Additional Controls in Place				
Physical Item or Activity	Hazard(s)	Control(s)	Occupancy A	Severity B	Likelihood C	Risk* AxBxC	Control(s) Added to Reduce Risk	Occupancy A	Severity B	Likelihood C	Risk* AxBxC	% Risk Reduction
Flammable/Explosive Gases Fire	Smoke And Heat	Fire detection & suppression systems, procedures, training, equipment protective systems, ASSRC/ESRC reviews, fire hazards analysis, project design reviews, Tier 1 inspections, maintenance, emergency procedures, ASE requirements, volume controls, segregation controls, labeling, area posting, gas detection interlock systems, Class I Division II explosion proof equipment as applicable, CMS reviews, CAS Watch facility walk-downs, BNL Fire Rescue and Police patrols.	5	5	1	25						
Dry Vegetation Fire	Smoke And Heat	Fire breaks, maintenance of fire breaks, procedures, training, BNL site-wide warning alarm system, fire hazards analysis, Tier 1 inspections, emergency procedures, BNL Fire Rescue, CAS Watch facility walk-downs and Police patrols.	5	1	2	10						
Flammable Liquid Fire	Smoke And Heat	Fire detection & suppression systems, procedures, training, chemical segregation, volume controls, flammable storage cabinets and storage controls, ventilation, labeling, MSDS, Tier 1 inspections, ignition source controls, CMS reviews, BNL fire rescue, CAS Watch facility walk-downs and Police patrols.	5	2	2	20						

			Risk with Controls in Place					Risk with Additional Controls in Place				
Physical Item or Activity	Hazard(s)	Control(s)	Occupancy A	Severity B	Likelihood C	Risk* AxBxC	Control(s) Added to Reduce Risk	Occupancy A	Severity B	Likelihood C	Risk* AxBxC	% Risk Reduction
Radiation Energy Deposition (Targets) – Fire	Smoke And Heat	Fire detection & suppression systems, procedures, training, equipment protective systems, ASSRC/ESRC reviews, fire hazards analysis, project design reviews, Tier 1 inspections, maintenance, emergency procedures, ASE requirements, access control system, cooling water systems, target-temperature monitoring, radiation monitoring, CAS Watch facility walk-downs, BNL Fire Rescue and Police patrols.	1	1	2	2						
Further Description of Controls Added to Reduce Risk: Site-wide communications via plectron radio. Fire Hazards Analysis (FHA) consultants hired by BNL to complete FHAs at C-AD in CY07. DOE funds requested for corrective actions beginning in FY08.												
*Risk:	0 to 20	21 to 40	41-60				61 to 80		81 or greater			
	Negligible	Acceptable	Moderate				Substantial		Intolerable			